Induced Cardiomyocyte Progenitor Cells for treating obstruction and thickening of cardiac muscles caused by Hypertrophic Cardiomyopathy

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Introduction

- Hypertrophic cardiomyopathy is a heterogenous myocardial disease that is primarily caused by missense, autosomal dominant sarcomeric mutations.
- Characterised by myocardial hypertrophy, defective diastolic filling and in ⅓ of all diagnosed cases, it is ventricular outflow obstruction.
- Temporary treatment option for patients with ventricular outflow obstruction is septal myectomy, an invasive procedure.

Objective

To propose a research study for an innovative experimental and long lasting treatment solution of ventricular outflow obstruction in HCM patients through systematic review.

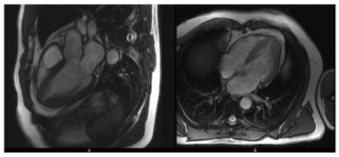
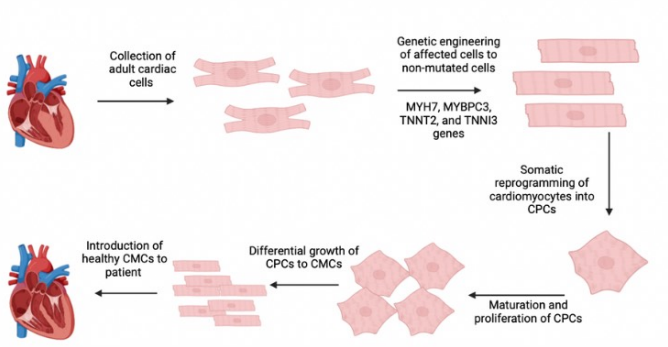


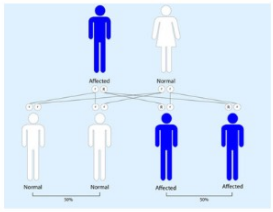
Figure - Cardiac MRI of a patient with HCM (collected)

Methodology

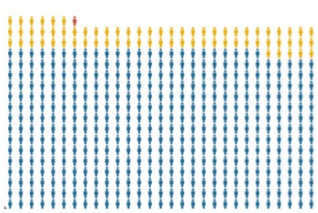


Discussion

Hypertrophic cardiomyopathy is the most common form of genetic cardiac disease and individuals with one parent with hypertrophic cardiomyopathy have a 50% chance of having the genetic mutation for the disease.

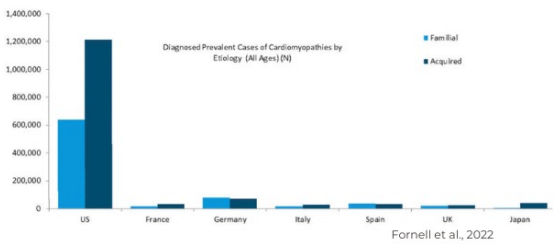


Autosomal Dominant Inheritance Pattern



Diagnosis: 1 in every 500 adults

HCM patients are reportedly much higher in North American countries specially US and Canada compared to any other countries.



Fornell et al., 2022

Conclusion

Using our proposed solution, the healthy CMCs derived from engineered iCPCs will transcribe non-mutated genes leading to optimum protein synthesis pathways and being a potential life saving treatment for HCM patients.

References

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